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GOODWE
your solar engine

SS/DS SERIES USER MANUAL

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your solar engine

SOLAR INVERTER

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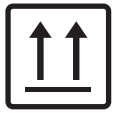
1 Symbols

	Caution! Failure to observe a warning indicated in this manual may result in injury.		Components of the product can be recycled.
	Danger of high voltage and electric shock!		This side up; the package must always be transported, handled and stored in such a way that the arrows always point upwards.
	Danger of hot surface!		No more than six (6) identical packages may be stacked on each other.
	Product should not be disposed as household waste.		The package/product should be handled carefully and never be tipped over or slung.
	CE Mark		Keep dry; the package/product must be protected from excessive humidity and must be stored under cover.
	Signals danger due to electrical shock and indicates the time (5 minutes) to allow after the inverter has been turned off and disconnected to ensure safety in any installation operation.		

2 Safety

The SS/DS series inverter of Jiangsu GoodWe Power Supply Technology Co. Ltd. (hereinafter referred to as GoodWe) strictly conforms to related safety rules in design and test. Safety regulations relevant to the location shall be followed during installation, commissioning, operation and maintenance. Improper operation may have a risk of electric shock or damage to equipment and property.(SS: Single-MPPT,Single-Phase; DS: Dual-MPPT, Single-Phase)

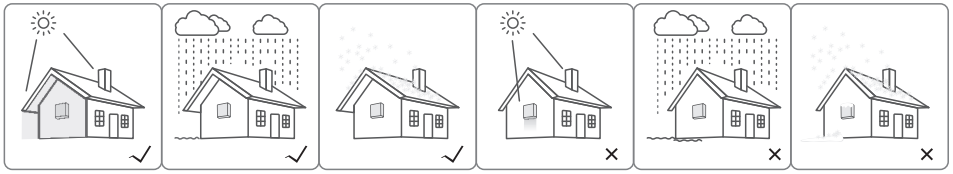
- Installation, maintenance and connection of inverters must be performed by qualified personnel, in compliance with local electrical standards, regulations and the requirements of local power authorities and/or companies.
- To avoid electric shock, DC input and AC output of the inverter must be terminated at least 5 minutes before performing any installation or maintenance.
- The temperature of some parts of the inverter may exceed 60°C during operation. To avoid being burnt, do not touch the inverter during operation. Let it cool before touching it.
- Ensure children are kept away from inverter.
- Do not open the front cover of the inverter. Apart from performing work at the wiring terminal (as instructed in this manual), touching or changing components without authorization may cause injury to people, damage to inverters and annulment of the warranty.
- Static electricity may damage electronic components. Appropriate method must be adopted to prevent such damage to the inverter; otherwise the inverter may be damaged and the warranty annulled.

- Ensure the output voltage of the proposed PV array is lower than the maximum rated input voltage of the inverter; otherwise the inverter may be damaged and the warranty annulled.
- When exposed to sunlight, the PV array generates dangerous high DC voltage. Please operate according to our instructions, or it will result in danger to life.
- PV modules should have an IEC61730 class A rating.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Completely isolate the equipment should : switch off the DC switch, disconnect the DC terminal, and disconnect the AC terminal or AC breaker.
- Prohibit inserting or pulling the AC and DC terminals when the inverter is electrified.

3 Installation

3.1 Mounting Instruction

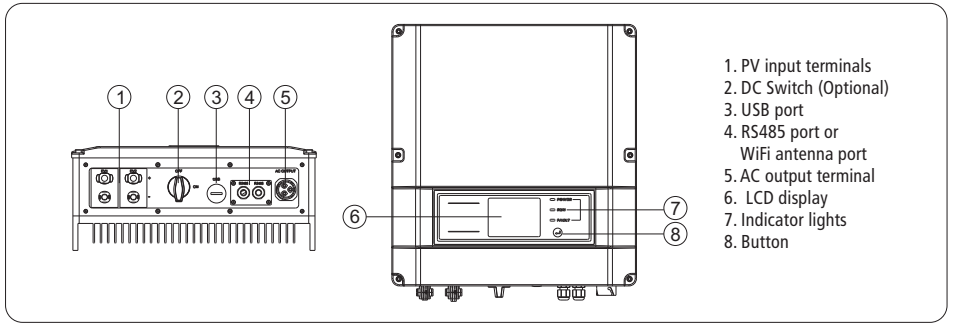
- In order to achieve optimal performance, the ambient temperature should be lower than 45 °C.
- For the convenience of checking the LCD display and possible maintenance activities, please install the inverter at eye level.
- Inverters should NOT be installed near inflammable and explosive items. Any strong electro-magnetic equipment should be kept away from installation site.
- Product label and warning symbol shall be clear to read after installation.
- Please install inverter in the place where is not exposed to direct sunlight, rain and snow.



3.2 Inverter Overview and Package

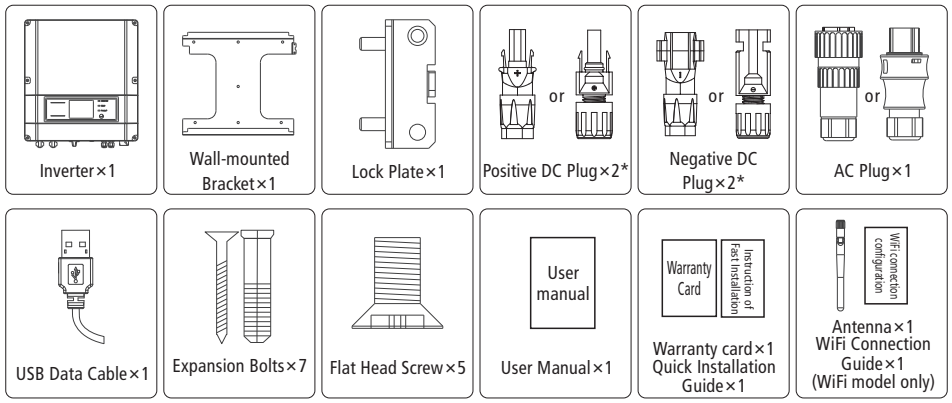
Check the scope of delivery for completeness and any visible damage.

3.2.1 Inverter Overview



1. PV input terminals
2. DC Switch (Optional)
3. USB port
4. RS485 port or WiFi antenna port
5. AC output terminal
6. LCD display
7. Indicator lights
8. Button

3.2.2 Package



*For GW1500-SS、GW2000-SS the number is 1.

3.3 Inverter Installation

3.3.1 Selecting the installation location

The following must be considered when selecting the best location for an inverter:

- The mount and installation method must be appropriate for the inverter's weight and dimensions.
- The location must be well ventilated and sheltered from direct sunlight.
- The inverter must be installed vertical or with a backward tilt less than 15°. No sideways tilt is allowed. The connection area must point downwards. Refer to Figure 3.3.1-1.

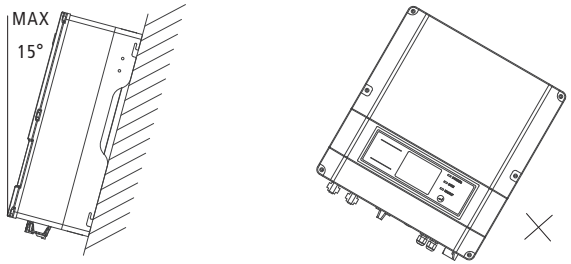


Figure 3.3.1-1

To allow dissipation of heat, and for convenience of dismantling, clearances around the inverter must be at least:

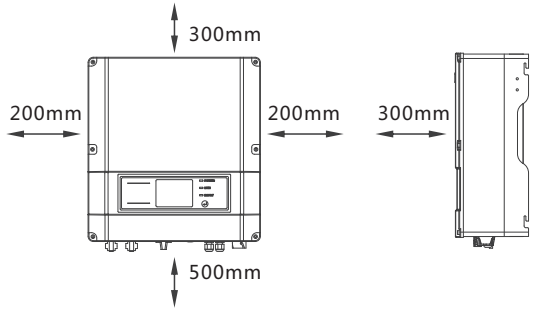


Figure 3.3.1-2

3.3.2 Mounting Procedure

(1) Use the wall-mounted bracket as a template and drill 7 holes in the wall, 10 mm in diameter and 80 mm deep. The inverter size of 1500W, 2000W, 3000W models can be referred to Figure 3.3.2-1, and the size of other models is as Figure3.3.2-2.

(2) Fix the wall mounting bracket on the wall using the expansion bolts in the accessories bag.

(3) Hold the inverter by the groove on the heat sink as Figure 3.3.2-3.

(4) Place the inverter on the wall-mounted bracket as illustrated in Figure3.3.2-4, 3.3.2-5, 3.3.2-6.

(5) Insert the lock plate pegs into the two holes in the heat-sink, then fix the inverter with a padlock and screw M3x8 as Figure 3.3.2-7, 3.3.2-8.

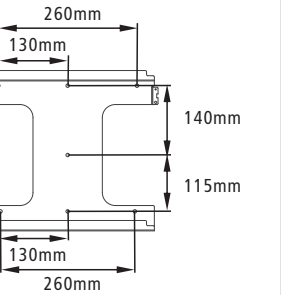


Figure 3.3.2-1

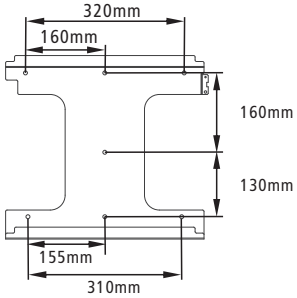


Figure 3.3.2-2

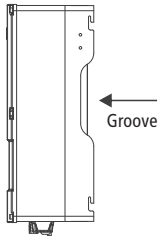


Figure 3.3.2-3

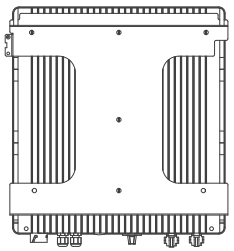


Figure 3.3.2-4

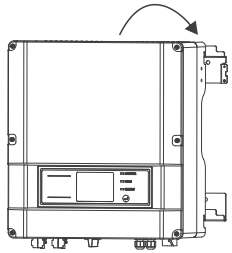


Figure 3.3.2-5

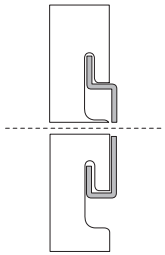


Figure 3.3.2-6

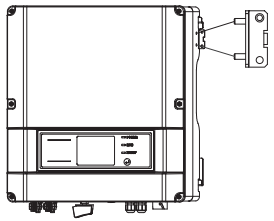


Figure 3.3.2-7

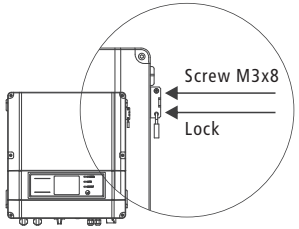


Figure 3.3.2-8

3.4 Electrical Connection

3.4.1 Connection to grid (AC side Connection)

(1) Check the grid voltage and frequency if it can comply with the required voltage and frequency of inverter connection.

(2) It is suggested that the breaker or fuse will be added in the AC side, its current should be over 1.25 times of rated current.

(3) Measure the impedance of neutral wire and ground wire to make sure it's less than 10 ohm.

(4) Disconnect the breaker or fuse between the inverter and the utility.

(5) Connect the inverter to the grid as follows:

There are two AC connector brands for inverter, VACONN and WIELAND. As is Figure 3.4.1-1

Figure 3.4.1-1

Installation instruction of VACONN series is referred to Figure 3.4.1-2.

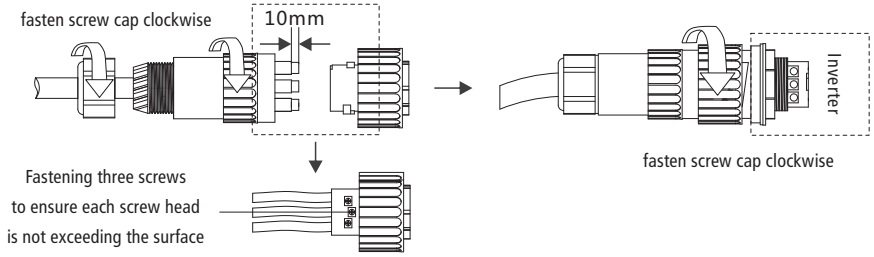


Figure 3.4.1-2

Installation instruction of WIELAND series is referred to Figure 3.4.1-3.

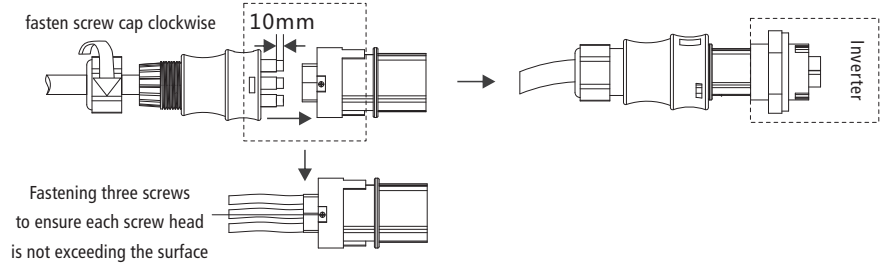


Figure 3.4.1-3

Cable specification of AC side is showed as Figure 3.4.1-4.

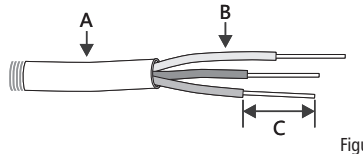


Figure 3.4.1-4

Grade	Description	Value
A	O.D.	10~12mm
B	Conductor Material Sectional Area	2.5~4mm^2
C	Bare Wire Length	10mm around

3.4.2 DC Side Connection

(1)Before connecting the PV strings, please ensure the plug connectors have the correct polarity. Incorrect polarity could permanently damage the unit.

(2)The open circuit voltage of the PV strings cannot exceed the maximum input voltage of the inverter.

(3)Only DC connectors provided by us are permitted to use.

(4)The positive and negative pole is forbid to connect PE wire (Ground wire), otherwise, it will damage the unit.

(5)Don't connect positive or negative pole of PV string to PE wire. Otherwise, it will cause damage to inverter.

There are two types of DC connectors, SUNCLIX and MC4 series. Refer to Figure 3.4.2-1.

Figure 3.4.2-1

Installation instruction of SUNCLIX is referred to Figure 3.4.2-2.

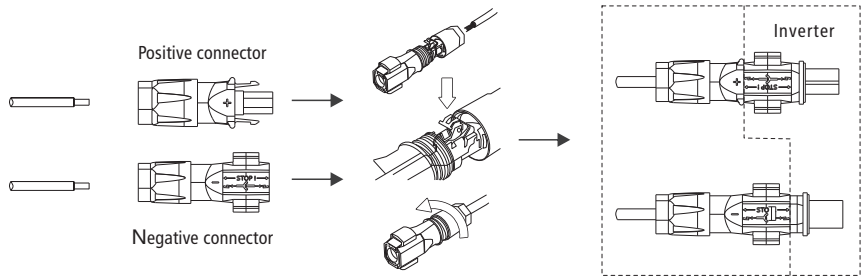


Figure 3.4.2-2

Installation instruction of MC4 is referred to Figure 3.4.2-3.

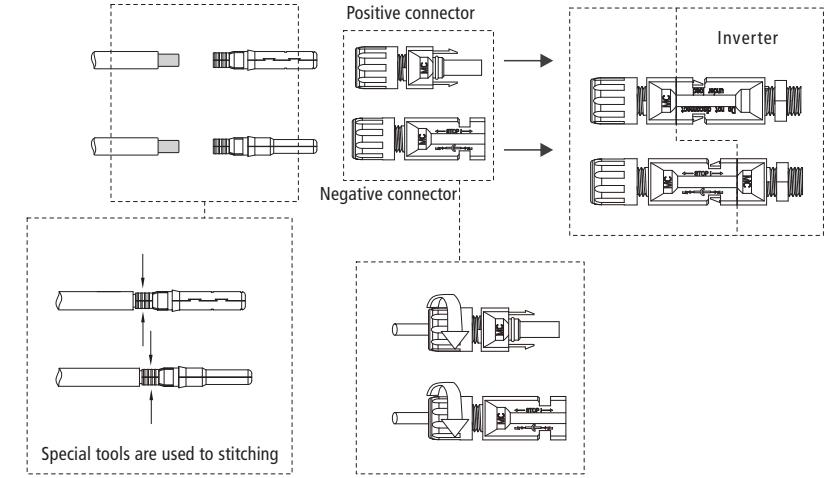


Figure 3.4.2-3

DC Cable specification is showed as Figure 3.4.2-4.

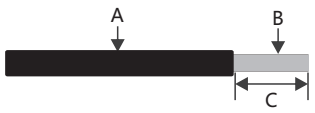


Figure 3.4.2-4

Grade	Description	Value
A	O.D.	4~5mm
B	Conductor Material Sectional Area	2.5~4mm^2
C	Bare Wire Length	7mm around

For the better protection of internal inverter from water and dust, both pairs of DC connectors provided in the accessory bag should connect to inverter. If there is only one string, the unused pair should connect to the inverter and also the exposed wire should be compressed, whose length is at least 15 mm outside the inverter. Refer to the Figure 3.4.2-5.

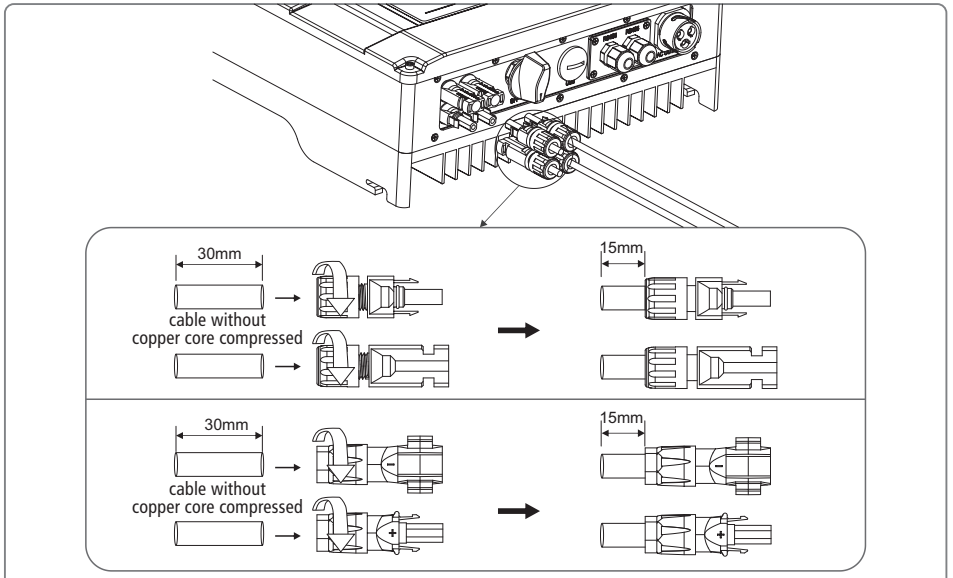


Figure 3.4.2-5

3.4.3 USB Communication

USB cable should be connected as Figure 3.4.3-1

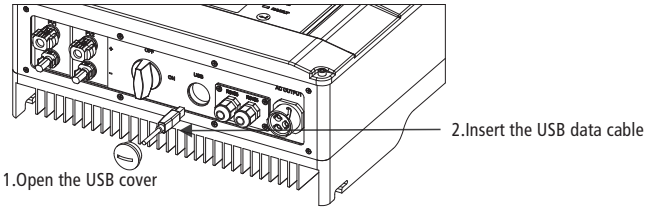


Figure 3.4.3-1

If you need USB monitoring solution, please download EzExplorer software at www.goodwe.com.cn.

3.4.4 RS485 Communication

This function is only applied to inverters with RS485.

The RS485 interface is used to connect EzLogger, and the maximum total length of all connecting cables should not exceed 800m.

RS485 connection is referred to 3.4.4-1.

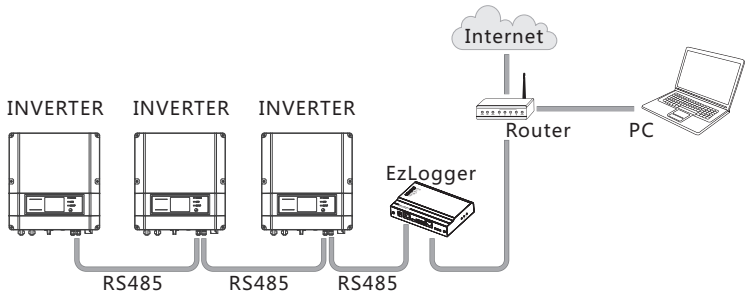


Figure 3.4.4-1

(1) Connection procedure:

●Remove the waterproof kit of RS485 cover with screwdriver.

●Remove the screw cap of the cable gland.

●Remove the one-hole sealing ring.

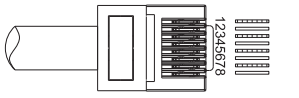
●Put the RS485 cable through the components in this order: screw cap, one-hole sealing ring, insulation body and sheet metal parts.

●Compress 8 cores of cable into the corresponding interface of crystal head. Refer to Figure 3.4.4-2.

●Connect the compressed crystal head to the communication interface of inverter.

●Fasten the RS485 waterproof kit to inverter.

●Fasten the screw cap of the cable gland.



PIN	Color of the wire	Function
1	Orange and white	Reserved
2	Orange	Reserved
3	Green and white	RX_RS485B
4	Blue	GND
5	Blue and white	GND
6	Green	RX_RS485A
7	Brown and white	TX_RS485B
8	Brown	TX_RS485A

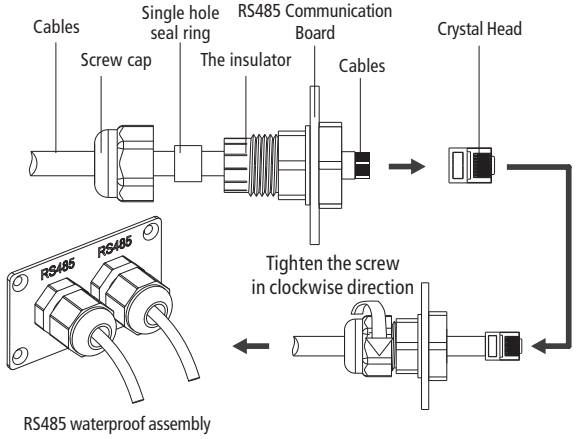


Figure 3.4.4-2

(2) Connect the inverter to EzLogger with RS485 cable, and EzLogger to switch or router with CAT5E STP cable.

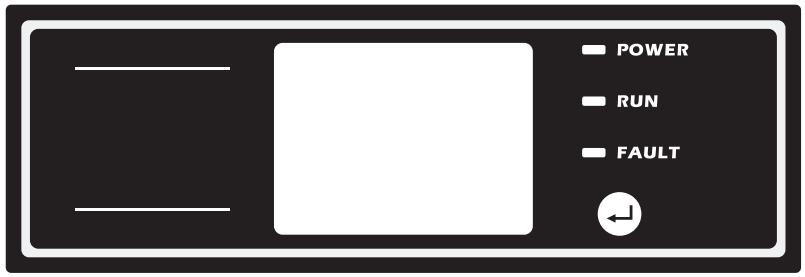
3.4.5 WiFi Communication

The WiFi communication function is only applied to WiFi models, the detailed configuration instruction can be referred to WiFi Configuration in the accessory box.

After configuration, please browse http://www.goodwe-power.com to create PV station.

4 System Operation

4.1 Indicator Lights



Indicator lights in Yellow/Green/Red correspondently refer to POWER/RUN/FAULT.

Yellow: Light on indicates the inverter is electrified. For WiFi models, Light flashes on 0.5sec off 0.5sec indicates the WiFi module doesn't connect to the WiFi router; Light flashed on 2.5sec off 2.5sec indicates the WiFi module connect to the WiFi router but cannot receive data from Web Server; Always on indicates communication between Web Server is ok.

Green: Light on indicates the inverter is feeding power. Light off indicates the inverter is not generating power at the moment.

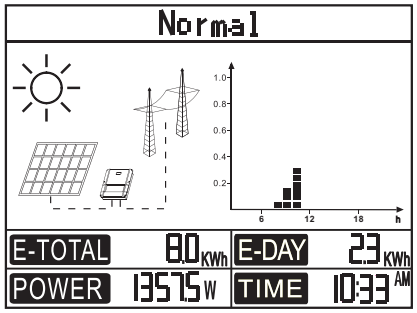
Red: Light on indicates abnormal conditions, while light off indicates normal condition.

4.2 User interface and use of the display

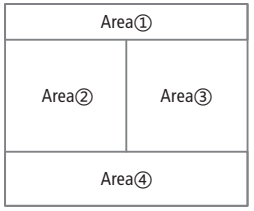
Set Safety Country :

If display shows 'Configure Safety', then long press (2S) the key to enter the second level menu. Short press to browse the safety country available. Choose suitable safety country according to the location of installation. The inverter will store the chosen language after 20 seconds of no operation.

(1) A schematic of the display screen is shown as below:



Display area is divided as follows:

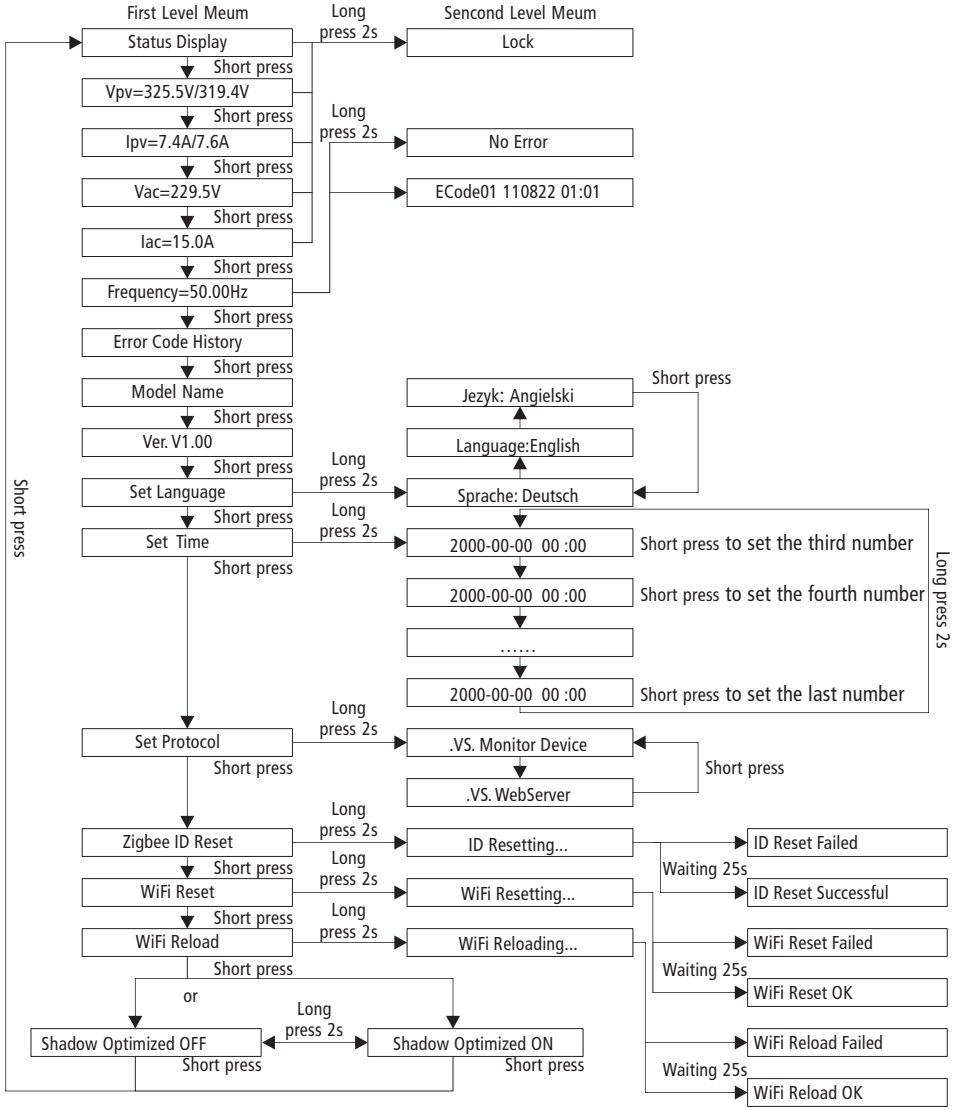


(2) Display area

Area①---Working status information

● This area displays the status information. "Waiting" indicates the inverter is standby for power generation; "Checking **S" (checking time is based on safety, and varies from country to country) indicates the inverter is self-checking, counting down and preparing for power generation. "Normal" indicates the inverter is generating power. If any condition of the system is abnormal, the screen will display an error message. Refer to Table 4.3.

● Through key operation, the screen can display different information such as operation parameters and power generation status in this area. There are two levels of menus, and the flow chart of first level menu is shown below:



●Menu display can be controlled by pressing the key, and holding the key for a while will enter into the submenu.

Area ②:

●The electrical connection status on DC side and the AC side are represented by dashed lines and full lines. Flashing dashed line on DC side indicates PV panel is feeding power to the inverter. Nothing shows on AC side means grid is not available.

Full line on AC side means grid is available, but the inverter is not generating power at the moment. Flashing dashed line on AC side indicates the inverter is feeding power to the grid network.

Area ③:

●Histogram is used to represent the hourly average power generation from 4 a.m. to 8 p.m. for the day. The average power at full column represents the nominal power of system.

Area ④:

● This area shows total power generation, daily power generation, and the power generated at present and time information, described as follow:

Part	Description
E-TOTAL	Gross power generated from the first use of the inverter. The initial unit is "kWh"; when power generation exceeds 9999.9kWh, the unit changes to "MWh".
E-DAY	Power generated for the day
POWER	Present power generation of the system
TIME	Current system time

(3) Use of the display

There are 2 modes of button operation: Short press and long press.

(4) Use of the display and LCD display

The display allows accessing the configuration of the basic parameters. All the language, time and country settings can be configured by buttons. The menu, shown in the LCD display area has two levels of menu. Short and long key presses will take you between menus and through each menu. Items in the first level menu that have no second level are locked. For these items, when the key is pressed for two seconds, the LCD will display the word "Lock" followed by data relating to the first level menu item. The locked menu can only be unlocked under system mode switching, fault occurrence or key operation.

In all levels of menu, if no action is taken for 20 seconds, the backlight of the LCD display will switch off, the display will automatically revert to the first item of the first level menu, and any modifications made to the data will be stored into internal memory.

(5) Menu Introduction

●When the PV panel is feeding power to the inverter, the screen shows the first-level menu.

● The initial display is the first item of the first level menu, and the interface displays the current status of the system. It shows "Waiting" in the initial state; it shows "Normal" during power generation mode; if there is something wrong with the system, an error message is shown. Please refer to Table 4.3.

View PV voltage, PV current, grid voltage, current and frequency:

●Short press the key to enter the Vpv menu which displays the PV voltage in "V".

●Short press the key to enter the Ipv menu which displays the PV current in "A".

●Short press the key to enter the Vac menu which displays the grid voltage in "V".

●Short press the key once more to enter the Iac menu which displays the grid current in "A".

●Short press the key once more to enter the Frequency menu which displays the grid frequency in "Hz".

●View Error code

Short press the key once more to enter the Error Code History menu.

Long press (2S) the key to enter the second level menu of error detection. The last three inverter error records will be shown by short pressing the key in this second level menu. The records include error codes (ECodeXX) and error times (110316 15:30). Error codes and their related faults can be found in Table 4.3.

●View model name and software version:

From the Error Code History item in the first level menu, short press the key once to see Model Name.

Short press the key once more to enter the software version menu which shows the current software version used.

Settings:

●Set language:

Short press the button to enter the Set Language menu. Long press (2S) the key to enter the second level menu. Short press to browse the languages available. The inverter will store the chosen language after 20 seconds of no operation.

●Set time:

From the first level Set Language menu, short press the key to enter the Set Time menu.

Long press (2S) the key to enter the second level menu. The initial display is "2000-00-00 00:00", in which the first four numbers represent the year (e.g. 2000~2099); the fifth and sixth numbers represent the month (e.g. 01~12); the seventh and the eighth numbers represent the date (e.g. 01~31). The remaining numbers represent the time.

Short press to increase the number in current location, and long press to move the cursor to next position. The inverter will store the time after 20 seconds without any key operation, and the LCD will automatically return to the main menu and the backlight will switch off.

●Set protocol:

The function is only used for service personnel, set wrong protocol could lead to communication failure.

From the first level Set Time menu, short press the key once to enters set protocol display menu. Press the key for 2S to enter submenu. The circulatory submenu including two protocols can be found. The protocol can be chosen by short pressing the key. The inverter will store the chosen protocol without any action within 25S and LCD display will automatically return to main menu when the backlight is off.

●MPPT function for Shadow:

The default setting for shadow optimizer is disabled.

Please enable shadow optimizer when there is shadow on PV panel. The function could help the system generate more power under shadow condition.

Please do not enable the function when there's no shadow on panel. Otherwise it could lead to generate less power.

Press the key until enter Shadow Optimize menu. When it shows "Shadow Optimized Off", it means the MPPT function for shadow is switched off. Press the key 2S to enable the function. If it shows "Shadow Optimized On" it means the shadow optimizer is on. Press the key 2S to disable the function.

●70% Rated power limit

The function could only be available for inverter in German. It could only be used by network operator. Otherwise it will cause the PV plant generated reduced.

Press the key until enter 70% rated power menu. If it shows "70% Rated Enable" it means the function to limit the inverter working under 70% rated output is switched off. Pressing key 2S will switch this function on. If it shows "Recover Rated Power" it means inverter is working under 70% of rated output power. Press key 2S will recover inverter to 100% of its rated output power.

(6) Operation of Display when commissioning.

When the input voltage reaches the inverter turn-on voltage, the LCD starts to work, the yellow light is on and the LCD displays "Waiting". More information will be displayed within a few seconds. If the inverter is connected to the grid, "Checking 30" will be displayed and a countdown will commence from 30 seconds. When it shows "00S" you will hear the relay triggered 4 times. The LCD will then display "Normal". The instant power output will be shown at the left bottom of the LCD.

4.3 Error code

An error message will be displayed on the LCD if a fault occurs.

Error Code	Error message	Description
01	SPI Failure	Internal communication failure
02	EEPROM R/W Failure	Eeprom device failure
03	Fac Failure	Grid frequency out of permissible range
07	Relay-Check Failure	Relay self-checking failure
13	DC Injection High	Overhigh DC current injection
14	Isolation Failure	Ground insulation impedance is too low
15	Vac Failure	Grid voltage out of permissible range
17	PV Over Voltage	Overvoltage at DC input
19	Over Temperature	Over temperature on the case
21	DC Bus High	Overhigh BUS voltage
22	Ground I Failure	Overhigh ground residual current
23	Utility Loss	Utility is unavailable
31	AC HCT Failure	Output current sensor failure
32	GFCI Failure	Detection circuit of ground residual current failure

4.4 WiFi Reset & WiFi Reload

The two functions are only available for WiFi model inverters.

WiFi reload function is used to change the WiFi configuration to default value. Please configure the WiFi again as 3.4.5 after using the function.

Press the key until the LCD displays "WiFi Reset", then long press (2S) until the LCD displays "WiFi Resetting…". Stop pressing and wait for the screen showing "WiFi Reset Successful" or "WiFi Reset Failed".

Press the key until the LCD displays "WiFi Reload", then long press (2S) until the LCD displays "WiFi Reloading…". Stop pressing and wait for the screen showing "WiFi Reload Successful" or "WiFi Reload Failed".

5 Troubleshooting

In most situations, the inverter requires very little maintenance. However, if the inverter is not working properly, please try the following troubleshooting solutions:

●When a problem occurs, the red (fault) LED indicator on the front panel will light up and the LCD screen will display the type of fault. The following table lists error messages and the solutions for associated faults.

Display		Troubleshooting
System failure	Isolation Failure	1.Disconnect DC switch, take off DC connector, Check the impedance between PV (+) & PV (-) to earth. 2.If impedance is less than 100 kΩ, please check the insulation of PV string wiring to the earth. 3.If impedance is larger than 100 kΩ, please contact local service office. 4.Take off AC connector, measure the impedance between neutral and PE. If it is larger than 10 kΩ, please check AC wiring.
	Ground I Failure	1.Disconnect DC switch, check the insulation of PV string wiring to earth. 2.Reconnect the DC switch again. 3.If the problem still exits, please call the local service office.
	Vac Failure	1.Disconnect the DC switch, taking off AC connector, measuring the voltage between line and neutral in connector, make sure if it conforms to the grid-connected specification of inverter. 2.If it does not, please check grid wiring. 3.If it does, please connect AC connector, reconnect DC switch, inverter will connect grid automatically. If the problem still exits, please call the local service office.
	Fac Failure	1.The PV Inverter will automatically restart if the Fac returns to normal. 2.If the problem still exits, please call the local service office.
	Utility Loss	1.Disconnect the DC switch, taking off AC connector, measure the voltage between line and neutral n connector, make sure if it conforms to the grid-connected specification of inverter. 2.If it does not, please check if the distribution switch is connected and the grid is normal. 3.If it does, reconnect AC connector and DC connector; If the problem still exits, please call the local service office.
	PV Over Voltage	1.Disconnect the DC switch, take off DC connector, check PV string voltage, make sure if it exceeds the input voltage in inverter specification. 2.If it does, please reconfigurate PV panel string. 3.If the problem still exits, please call the local service office.
	Over Temperature	1.Please check if installation position conforms to the specification. 2.Try to lower the surrounding temperature. 3.Move the inverter to vents or alter the installation position. 4.If the problem still exits, please call the local service office.
Inverter failure	Relay-Check Failure	1.Disconnect the DC connector. 2.Reconnect the DC connector. 3.If the problem still exits, please call the local service office.
	DC Injection High	
	EEPROM R/W Failure	
Inverter failure	SCI Failure	1.Disconnect the DC connector. 2.Reconnect the DC connector. 3.If the problem still exits, please call the local service office.
	SPI Failure	
	DC Bus High	
	GFCI Failure	
	No display	1.Disconnect the DC switch, take off DC connector, measure the voltage of PV string. 2.Plug in DC connector, and reconnect DC switch. 3.If the voltage is less than 125V, please check the PV string configuration. 4.If the voltage is higher than 125V and still no display, please contact local service office.

Note: When sunlight is insufficient, the PV Inverter may continuously start up and shut down automatically due to insufficient power generated by the PV panels, which would not lead to inverter damage. If the problem still exits, please call the local service office.

6 Technical Parameters

Model	GW1500-SS	GW2000-SS	GW3000-SS	GW3600-SS	GW4000-SS	GW4600-SS
DC input Data						
*Max. DC power(W)	1800	2300	3200	4200	4600	5400
Max. DC voltage (V)	450	500	500	580	580	580
MPPT voltage range (V)	125~450			125~550		
Starting voltage (V)	125			125		
Max. DC current (A)	12	15	18	20	20	20
DC overcurrent protection(A)	21	21	23	30	30	30
No. of DC connectors	1	1	2	2	2	2
No. of MPPTs	1			1		
DC overvoltage category	Category Ⅱ					
DC connector	SUNCLIX / MC4 (optional)					
AC Output Data						
Norminal AC power(W)	1500	2000	3000	3600	4000	4600
Max. AC power(W)	1650	2000	3000	4000	4400	5100
Max. AC current(A)	8	10	15	16	22	25
AC overcurrent protection(A)	18.5	18.5	26.5	37	37	43
Norminal AC output	50/60Hz; 230Vac					
AC output range	45~55Hz/55~65Hz; 180~270Vac					
THDi	<1%					
Power factor	0.9 leading~0.9 lagging					
Grid connection	Single Phase					
AC overvoltage category	Category Ⅲ					
Efficiency						
Max. efficiency	97.0%	97.0%	97.0%	97.8%	97.8%	97.8%
Euro efficiency	>96%	>96%	>96.5%	>97.4%	>97.4%	>97.4%
MPPT adaptation efficiency	>99.5%					
Protection						
Residual current monitoring unit	Integrated					
Anti-islanding protection	Integrated					
DC switch	Integrated(optional)					
AC over current protection	Integrated					
Insulation monitoring	Integrated					
Certifications&Standards						
Grid regulation	VDE-AR-N 4105, AS4777.2&.3, RD1699, G83/2, IEC62109-2, VDE0126-1-1+A1, EN50438					
Safety	According to IEC62109-1&-2, AS3100					
EMC	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-2, EN 61000-3-3					
General Data						
Dimensions (WxHxD)	355*380*134mm			390*417*142mm		
Weight (kg)	12	12	13	18	18	18

Mounting	Wall Mounting
Ambient temperature range	-25～60°C (>45°C derating)
Relative humidity	0～95%
Moisture location category	4K4H
Max. operating altitude	2000m
Protection degree	IP65
Environment category	Outdoor & indoor
External environment pollution degree	Grade1、2、3
Topology	Transformerless
Night power consumption(W)	<1
Cooling	Natural Convection
Noise emision(dB)	<25
Display	4.0'' LCD
Communication	USB2.0 ; RS485 or WiFi
Standard warranty(years)	5/10/15/20/25(optional)

Model	GW3600-DS	GW4200-DS	GW4600-DS
DC input Data			
*Max. DC power(W)	3800	4600	5400
Max. DC voltage (V)	580		
MPPT voltage range (V)	125~550		
Starting voltage (V)	125		
Max. DC current (A)	10/10	15/15	15/15
DC overcurrent protection(A)	21	21	21
No. of DC connectors	2		
No. of MPPTs	2 (can parallel)		
DC overvoltage category	Category Ⅱ		
DC connector	SUNCLIX / MC4 (optional)		
AC Output Data			
Norminal AC power(W)	3600	4200	4600
Max. AC power(W)	3600	4400	5100
Max. AC current(A)	18	21	25
AC overcurrent protection(A)	35	43	43
Norminal AC output	50/60Hz; 230Vac		
AC output range	45~55Hz/55~65Hz; 180~270Vac		
THDi	<1.5%		
Power factor	0.9 Leading~0.9 Lagging		
Grid connection	Single phase		
AC overvoltage category	Category Ⅲ		

Model	GW3600-DS	GW4200-DS	GW4600-DS
Efficiency			
Max. efficiency	97.6%	97.8%	97.8%
Euro efficiency	>97%	>97.4%	>97.4%
MPPT adaptation efficiency		>99.5%	
Protection			
Residual current monitoring unit		Integrated	
Anti-islanding protection		Integrated	
DC switch		Integrated(optional)	
AC over current protection		Integrated	
Insulation monitoring		Integrated	
Certifications&Standards			
Grid regulation	VDE-AR-N 4105, AS4777.2&.3, RD1699, IEC62109-2, VDE0126-1-1+A1, EN50438	VDE-AR-N 4105, AS4777.2&.3, RD1699, G59/2, IEC62109-2, VDE0126-1-1+A1, EN50438	VDE-AR-N 4105, AS4777.2&.3, MEA, PEA RD1699, G59/2, IEC62109-2, VDE0126-1-1+A1, EN50438,
Safety	IEC62109-1&-2, AS3100		
EMC	EN 61000-6-1,EN 61000-6-2,EN 61000-6-3,EN 61000-6-4, EN 61000-3-11, EN 61000-3-12		
General Data			
Dimensions (WxHxD)	390*417*165mm		
Weight (kg)	20		
Mounting	Wall Mounting		
Ambient temperature range	-25～60°C (>45°C derating)		
Relative humidity	0～95%		
Moisture location category	4K4H		
Max. operating altitude	2000m		
Protection degree	IP65		
Environment category	Outdoor & indoor		
External environment pollution degree	Grade1、2、3		
Topology	Transformerless		
Night power consumption(W)	<1		
Cooling	Natural Convection		
Noise emision(dB)	<25		
Display	4.0'' LCD		
Communication	USB2.0 ; RS485 or WiFi		
Standard warranty(years)	5/10/15/20/25(optional)		

*It is recommended that the total peak power of PV strings should not exceed 130% of maximum DC power of inverter listed in the table.

Note

Overvoltage category definition

Category I : applies to equipment connected to a circuit where measures have been taken to reduce transient overvoltage to a low level.

Category II : applies to equipment not permanently connected to the installation. Examples are appliances, portable tools and other plug-connected equipment;

Category III: applies to fixed equipment downstream of and including, the main distribution board. Examples are switchgear and other equipment in an industrial installation;

Category IV: applies to equipment permanently connected at the origin of an installation (upstream of the main distribution board). Example are electricity meters, primary overcurrent protection equipment and other equipment connected directly to outdoor open lines.

Moisture location category definition

Moisture parameters	Level		
	3K3	4K2	4K4H
Temperature Range	0~+40℃	-33~+40℃	-20~ +55°C
Humidity Range	5%~85%	15%~100%	4%~100%

Environment category definition

Outdoor : the ambient air temperature is -20~50°C, Relative humidity range is 4 % to 100 %, applied to PD3

Indoor unconditioned: the ambient air temperature is -20~50°C, Relative humidity range is 5 % to 95%,applied to PD3

Indoor conditioned: the ambient air temperature is 0~40°C, Relative humidity range is 5 % to 85%,applied to PD2

Pollution degree definition

Pollution degree 1: No pollution or only dry, non-conductive pollution occurs. The pollution has no influence.

Pollution degree 2: Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected.

Pollution degree 3: Conductive pollution occurs, or, dry, non-conductive pollution occurs which becomes conductive due to condensation which is expected.

Pollution degree 4: Persistent conductive pollution occurs, for example, the pollution cause by conductive dust, rain and snow.

7 Certificates

westernpower **VDE-AR-N 4105 62109-2 EN50438 NRS097-2-1 RD1699 MEA&PEA**